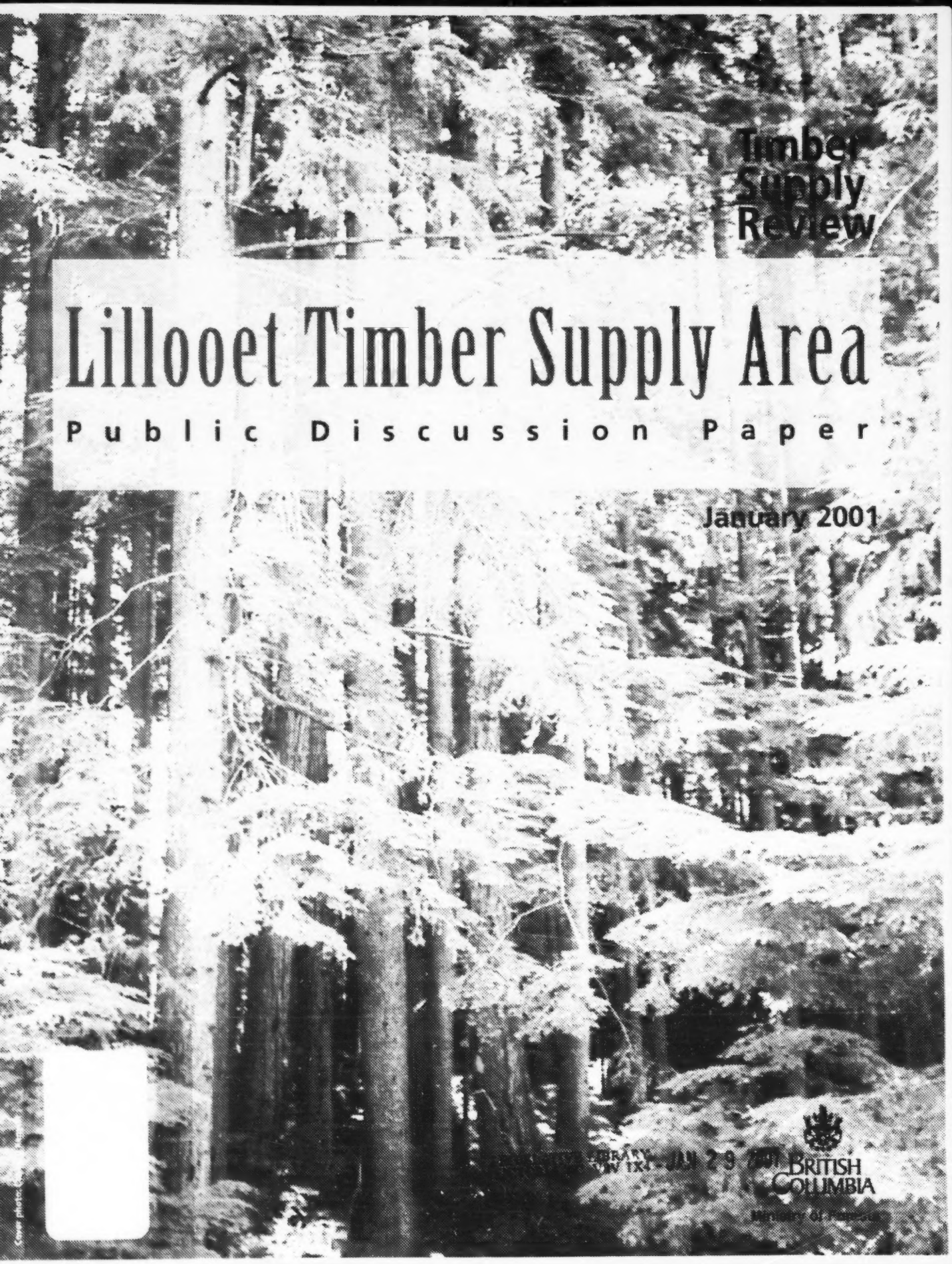

Timber Supply Review

Lillooet Timber Supply Area

Public Discussion Paper

January 2001

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BRITISH COLUMBIA
Ministry of Forests

Introduction

The British Columbia Forest Service is reviewing the timber supply for all timber supply areas (TSAs) and tree farm licences (TFLs) in the province. This review examines the impacts of current forest management practices on the timber supply, economy, environment and social conditions of the local area and the province. Based on this review, the chief forester may, if necessary, adjust the allowable annual cut (AAC) for the Lillooet TSA.

By law, the chief forester must review and set new AACs for all TSAs and TFLs every five years. The objectives of the Timber Supply Review are:

- to identify relevant current forest management practices and assess their effects on short- and long-term timber supply, and identify related economic, environmental and social factors
- to identify where improved information is required for future timber supply forecasts
- to provide the chief forester with information to make any necessary adjustments to the AACs for the next five years

Timber Supply Review in the Lillooet TSA

The *Lillooet TSA Data Package* and *Information Report* were released in June 1999. Following the release, the documents were reviewed by licensees, the public and government agencies. The BC Forest Service has now completed the *2001 Lillooet TSA Analysis Report,* which is summarized in this discussion paper. The objectives of this document are to provide British Columbians with an overview of the Timber Supply Review process and harvest level forecasts for the Lillooet TSA and to encourage them to provide comments during the 60-day public review period. **Public comments will be accepted until March 26, 2001.**

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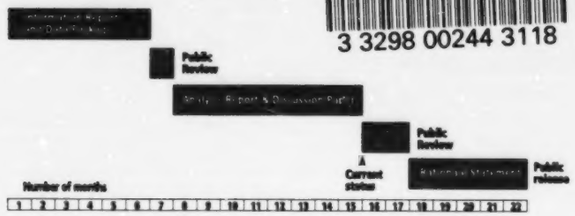

Figure 1. *Review process for the Lillooet TSA*

Before setting a new AAC, the chief forester will review all relevant reports and public input. The chief forester's determination will be outlined in a rationale statement which, along with the summary of public input, will be available to the public upon release. Following the release of the AAC determination by the chief forester, the minister of forests will apportion the AAC to the various licences and programs.

Description of the TSA

The Lillooet TSA is situated in southwestern British Columbia and covers 1.1 million hectares of the Kamloops Forest Region. The boundaries of the TSA are equivalent to those of the Lillooet Forest District and the TSA is administered from the forest district office in Lillooet.

** A timber supply area is an integrated resource management unit established in accordance with section 7 of the Forest Act.*

According to the 1996 census, the population of the Lillooet TSA is 6,538, an increase of about 6.5 per cent since 1991. About one-third of the population live in the Village of Lillooet, the TSA's largest single community. Smaller communities include Lytton, Bralorne, Gold Bridge and Spences Bridge. There are numerous Indian Reserves and a significant First Nations population.

First Nations

Twelve First Nation communities are found within the TSA, mainly along the Fraser and Thompson rivers and Seton Lake. First Nations in the Lillooet TSA are represented by eight tribal associations which are responsible for strategic planning, economic development, and coordination of information regarding the lands traditionally claimed by four First Nations (St'at'imc, Nlaka'pamux, Secwepmc and T'silquotin). In addition, eight First Nations with reserves outside the Lillooet TSA have significant land-based interests within the TSA.

While the points of views and cultures of First Nations people in the Lillooet TSA are quite diverse, some common themes are apparent. Many First Nation communities within the Lillooet TSA have expressed a desire to play a greater role in the forest economy in keeping with their beliefs as aboriginal peoples. For some First Nations people achieving balance between industry demands and forestry practices which take into account good environmental stewardship is fundamental to their participation in forestry.

The Lillooet TSA is unique because of its high density of known and predicted archaeological sites. An Archaeological Overview Assessment has been completed for the TSA, which identifies areas of potential archaeological significance that will be considered during operational planning. As well, the Xaxli'p First Nation (Fountain Band) is currently engaged in the B.C. Treaty Process, and treaty settlement lands could potentially be negotiated within the Lillooet TSA in 2001.

The natural resources

The forest lands of the Lillooet TSA provide a wide range of resources, including timber, forage, water, fisheries, wildlife, scenic landscapes, and recreation and tourism opportunities.

The climate and ecology of the Lillooet TSA are diverse because of the mountainous terrain, which includes the Coast Mountain Range in the west, the southern Chilcotin Ranges in the north, and the Pavilion Ranges in the east. The western portion of the TSA begins the transition from wet coastal conditions to drier interior conditions. In the east, the TSA rises toward the Thompson-Okanagan plateau and has the characteristic low rainfall of the interior dry belt. The forests of the Lillooet TSA are diverse, with lodgepole pine, Douglas-fir and spruce the dominant species.

The Lillooet TSA supports a wide variety of wildlife, including large mammals such as grizzly bear, moose, mountain goat, mule deer and bighorn sheep, as well as many species of small mammals, birds and fish. Under the Forest Practices Code, there is a process for identifying species at risk that require special management. Currently, there are 16 species identified as at risk that may be found in the Lillooet TSA, including tailed frog, mountain beaver and bull trout. Additional measures for managing wildlife species at risk, such as grizzly bear and spotted owl, may also be recommended through the ongoing Lillooet Land and Resource Management Plan.

Both residents and tourists enjoy outdoor recreation activities in the TSA and nearby provincial parks. Activities include hiking, mountain biking, rock and ice climbing, camping, hunting, fishing, boating, river rafting, horseback riding, heli-skiing, cross-country skiing and snowmobiling.

The current timber harvesting land base in the Lillooet TSA represents about 26 per cent of the total TSA area and about 59 per cent of the productive forest land.

Environmental values

Current forest management follows the standards set out by the Forest Practices Code. These standards are designed to maintain a range of biodiversity and wildlife values. In the Lillooet TSA, about 41 per cent of the productive Crown forest is not considered available for timber harvesting and will provide for many environmental values. Forested area both inside and outside of the timber harvesting land base will help to maintain critical forest habitats for many species. Forest cover requirements for biodiversity, visual quality, ungulate winter range and community watersheds were included in the analysis.

Land use planning

The Lillooet Land and Resource Management planning (LRMP) process began in 1995. The process provides an opportunity for the public, First Nations, interest groups and government to make recommendations regarding protected areas and future management of public forest and aquatic

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areas within the planning area. If the LRMP is completed and approved by government prior to setting the AAC, it will be considered in the determination.

Current allowable annual cut

The current allowable annual cut (AAC) in the Lillooet TSA is 643,500 cubic metres. This level was set by the chief forester in June, 1996, and was unchanged from the previous determination.

This AAC includes 6,900 cubic metres that now have been transferred to woodlot licences. Once issued, woodlot licences are administered separately from the rest of the TSA, so the harvest level currently attributable to the TSA is 636,600 cubic metres.

Socio-economic profile

Regional economy

The economy of the Lillooet TSA is primarily forest-based. As Figure 2 shows, forestry is the largest contributor to private-sector employment at 27 per cent of the labour force. Tourism ranks second in terms of private sector employment, providing about 15 per cent of the total employment. The public sector is the TSA's largest employment sector at 37 per cent.

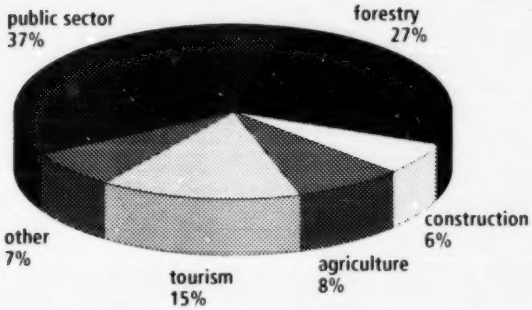

Figure 2.
Lillooet TSA - Estimates of Employment by Sector, 1996

Source: 1996 Forest District Tables, BC Ministry of Finance and Corporate Relations

The forest sector supports numerous other jobs in the area through companies and employees purchasing goods and services from local businesses. Each 100 full-time direct forestry jobs in the Lillooet TSA are estimated to support another 24 to 40 indirect and induced jobs, depending on the forestry activity (harvesting or timber processing). In comparison, 100 direct jobs in the public sector support an estimated 12 to 22 indirect and induced jobs, and 100 tourism jobs support an additional six to 14 positions.

Table 1 illustrates the potential contribution of the forest industry associated with the Lillooet TSA timber harvest to both the regional and provincial economies. Figures in this table are based on the average 1996-1999 annual harvest of 488,023 cubic metres, only about three-quarters of the current AAC.

	TSA	Provincial
Direct employment (person years)	328	659
Total employment (person years)	434	1,311
Total employment income ($1999 millions per year)	$13.4	$37.4
Provincial government revenues ($1999 millions per year)	n.a.	$13.1

Table 1. ***Summary of local and provincial economic information associated with the average 1996-1999 annual harvest.***

Timber supply forecasts

A timber supply computer model was used to project several possible timber supply forecasts for the next 250 years. One of these forecasts is the base case forecast which illustrates the effect of current forest management on timber supply. The base case is not an AAC recommendation, rather it is one of many sources of information the chief forester will consider when setting the AAC.

The base case forecast is presented in this paper for discussion and comparison; due to areas of uncertainty, the AAC determined by the chief forester may be greater or less than the level forecast in the base case.

The timber supply forecast for the Lillooet TSA indicates that an initial harvest level of 636,600 cubic metres per year could be maintained for 30 years before gradually declining by 10 per cent per decade to the long-term harvest level of 368,000 cubic metres per year. As well, the analysis shows that for the first 20 years the harvest level could be

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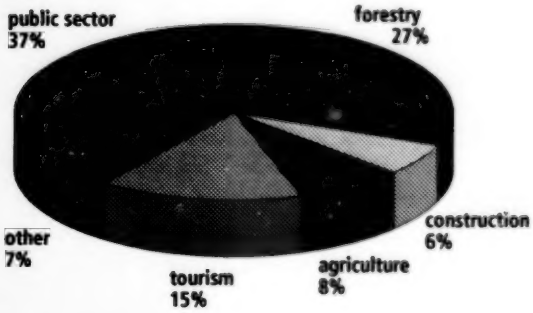

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increased by 25,000 cubic metres per year as a result of the contribution of the portion of the land base and timber supply covered by the remaining 15 years of Pulpwood Agreement 16 (though no specific harvesting has been attributed to the pulpwood agreement to date). The base case harvest forecast, then, is 661,600 cubic metres per year.

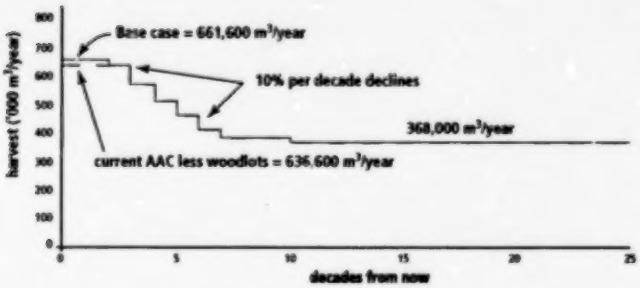

Figure 3.
Base case and initial harvest forecasts-Lillooet TSA, 2001

Compared to the 1995 timber supply analysis, several changes have occurred in the Lillooet TSA that affect the timber supply forecast. Implementation of the Forest Practices Code, including further reductions for riparian areas, wildlife tree patches, and requirements for old- growth forest, has affected timber availability. In addition, the creation of the Stein Valley Nlaka'pamux Heritage Park and Duffy Lake Provincial Park removed about 10,000 hectares from the harvesting land base. These reductions have been offset by an overall six per cent increase in the size of the timber harvesting land base due to the inclusion of areas covered by Pulpwood Agreement 16 and to improvements regarding sensitive terrain information.

Sensitivity analyses: examining uncertainty

Because forests are complex and constantly changing, timber supply analysts assess how their timber supply forecast results might be affected by uncertainties in the inventory information and management practices. These uncertainties are generally examined through what are called sensitivity analyses, which the chief forester will consider in determining an AAC. Sensitivity analyses are useful for assessing how any changes in information or uncertainties and risks might affect timber supply.

In the Lillooet TSA, a number of sensitivity analyses were conducted to examine the stability of the timber supply in light of uncertainties. Two important sensitivity analyses are described below. For a complete listing of sensitivity analyses, please refer to the 2001 Lillooet TSA Analysis Report.

Uncertainty about the size of the timber harvesting land base

Uncertainty about the size of the timber harvesting land base can stem from factors such as fluctuations in timber prices, innovations in harvesting and milling technology, land use decisions associated with LRMPs, and new information that could lead to changes in area reserved to protect riparian areas or sensitive terrain. In the Lillooet TSA, two important areas of uncertainty are the long-term contributions of the area covered by Pulpwood Agreement 16, and of economically marginal stands on the difficult terrain. While there are no specific indications that the timber harvesting land base was either under-or overestimated in the analysis, sensitivity analyses were conducted to assess the implications of such uncertainties.

As Figure 4 shows, if the timber harvesting land base is decreased by 10 per cent, there is sufficient area in older existing stands to support the initial harvest forecast for 20 years (compared to 30 years in the base case). If the timber harvesting land base is increased by 10 per cent, the base case harvest forecast can be maintained for an additional decade.

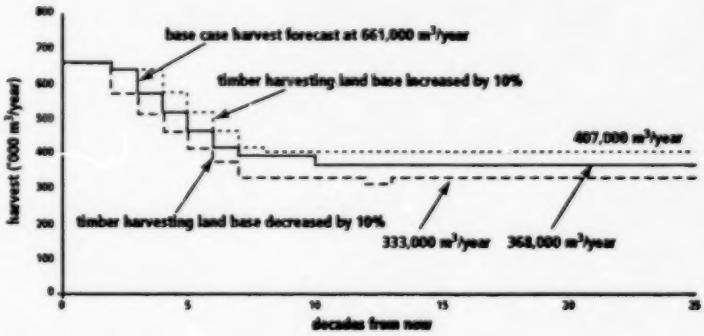

Figure. 4 Uncertainty about the size of the timber harvesting land base—Lillooet, 2001

Uncertainty about estimates of timber volumes in existing stands

Although recent audits and studies indicate that volumes in existing stands are statistically acceptable, some uncertainty still exists and further study is ongoing. Since the initial harvest level in the base case forecast is approximately 45 per cent higher than the long-term harvest level, changes in existing stand volumes could have a significant effect on timber supply. Figure 5 illustrates the results of sensitivity analyses in which stand volumes were increased and decreased by 10 per cent.

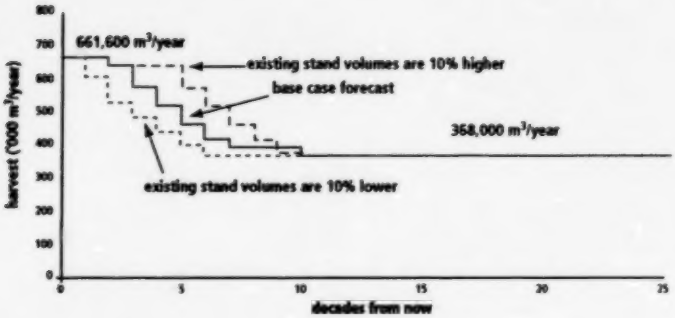

Fig. 5 ***Harvest forecast showing the effects of changes to the volume estimates for existing unmanaged stands—Lillooet TSA, 2001***

If existing volumes are 10 per cent lower, the initial harvest level would only be maintained for one decade and would reach the long-term harvest level four decades earlier than in the base case harvest forecast. If existing volumes are 10 per cent higher, then the initial harvest level is forecast to be maintained for five decades and the long-term harvest level would be reached at the same time as in the base case harvest forecast.

Implications of changes in the AAC

Community Implications

The implication of changes in the AAC for local communities is an important consideration in the Timber Supply Review. The base case harvest forecast for the Lillooet TSA suggests that a harvest level of 661,600 cubic metres per year could be maintained for 20 years. Given that the average actual harvest level from 1996 through 1999 has been about 25 per cent per cent lower than the current AAC, there could be an increase in employment or other industry-related activity in the Lillooet TSA if the base case level is fully harvested. In addition, although the timber supply forecast shows a series of reductions starting in 20 years, there is a relative degree of stability to the level of forest activity because for at least the next 40 years the harvest level projections remain higher than the actual average harvest level of 1996 to 1999.

Your input is needed

Establishing the AAC is an important decision that requires well-informed and thoughtful public input. Feedback is welcomed on any aspect of this discussion paper, the *2001 Lillooet TSA Analysis Report* and other issues related to the timber supply in the Lillooet TSA. Forest Service staff would be pleased to answer questions or discuss concerns that would help you prepare your response. Please send your comments to the forest district manager at the address below. Your comments will be accepted until March 26, 2001.

You may identify yourself on the response if you wish. If you do, you are reminded that responses will be subject to the *Freedom of Information and Protection of Privacy Act* and may be made public. If the responses are made public, personal identifiers will be removed before the responses are released.

A summary of public comments will be attached to the AAC rationale and will be available from the district office when the chief forester's AAC determination is announced.

For more information contact and/or mail your comments to:
District Manager
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Bag 700
Lillooet, B.C. V0K 1V0
Phone: (250) 256-1204, Fax: (250) 256-1290

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Background Information Regarding TSR

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The Chief Forester's Responsibility

Determining the allowable annual cuts (AACs) for public forest lands in British Columbia is the responsibility of the province's chief forester. In this lengthy and complex process, the chief forester considers technical reports, analyses and public input, as well as government's social and economic objectives.

This responsibility is required by legislation in the *Forest Act,* Section 8. It states that the chief forester shall specifically consider the following factors:

1. The rate of timber production that may be sustained from the area, taking into account:
   - the composition of the forest and its expected rate of growth
   - the time that it will take the forest to become re-established
   - silviculture treatments, including reforestation
   - standards of timber utilization
   - constraints on the amount of timber that may be produced due to use of the forest for other purposes.
2. The short- and long-term implications to the province of alternative rates of timber harvesting from the area.
3. The nature, production capabilities and timber requirements of established and proposed processing facilities.
4. The economic and social objectives of the Crown for the area, region and province—as expressed by the minister of forests.
5. Abnormal insect or disease infestations, and major salvage programs planned for the timber on the area.

Some of these factors can be measured and analyzed—others cannot. Ultimately, the chief forester's determination is an independent professional judgment based on the best available information. By law, the chief forester is independent of the political process, and is not directed by the minister of forests when determining AACs. In these determinations, the chief forester considers relevant information from all sources.

Why the current AAC may be higher than the long-term harvest level.

Some concern has been expressed that the AACs are higher than the long-term harvest level. There are two main factors which explain this difference:

- In the short term, harvesting takes place in older forests which have accumulated high timber volumes by growing for a long time. Future harvesting on the same sites will take place in second-growth forests at younger ages, often yielding lower volumes per hectare.
- Where the long-term harvest level is significantly below the current AAC, the chief forester's strategy is to gradually reduce AACs in a managed transition to the lower level over several decades (provided the long-term harvest level is not jeopardized). This allows communities that rely on the forest sector to avoid sudden economic disruptions and to plan for the future.